AF/1742

Atty. Dkt. No. 017447-0171

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Tomohisa ARAI et al.

Title: GIANT MAGNETOSTRICTIVE MATERIAL AND MANUFACTURING METHOD THEREOF, AND MAGNETOSTRICTIVE ACTUATOR AND MAGNETOSTRICTIVE SENSOR THEREWITH

Appl. No.: 09/779,435

Filing Date: 02/09/2001

Examiner: J. Sheehan

Art Unit: 1742

AMENDMENT AND REPLY UNDER 37 CFR 1.116

Mail Stop AF
Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

This communication is responsive to the Final Office Action dated August 11, 2003, concerning the above-referenced patent application.

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11-25-2003

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this document.

Remarks/Arguments begin on page 8 of this document.

Please amend the application as follows:

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) Giant magnetostrictive material whose dimensions vary at an application of an external magnetic field thereon, comprising:

a mother alloy consisting essentially of a rare earth element and a transition ~~element~~ metal and having a composition represented by the formula:

$R(T_xM_{1-x})_z$

wherein R denotes at least one element selected from rare earth elements including Y, wherein T denotes at least one element selected from the group consisting of Fe, Co and Ni, wherein M denotes at least one element selected from transition elements other than Fe, Co and Ni, and wherein X and Z are numbers satisfying $0.5 \leq X \leq 1$ and $1.4 \leq Z \leq 2.5$, respectively; and

nitrogen contained in the mother alloy;

wherein the nitrogen comprises an interstitial nitrogen interstitially dissolved in the mother alloy and a nitride-forming nitrogen in the mother alloy, a ratio of a content of the nitride-forming nitrogen to a total content of the nitrogen contained in the mother alloy being in the range 0 to 0.05 by mass ratio.

2. (Previously Amended) The giant magnetostrictive material as set forth in claim 1:

wherein the total content of the nitrogen in the mother alloy is in the range from 0.01 to 2.5% by mass.

3. (Previously Amended) The giant magnetostrictive material as set forth in claim 1: